

WHAT IS CLAIMED IS:

1. A color management architecture for managing red, blue, and green primary colors from a substantially white input light, the architecture comprising:
 - an input dichroic beam splitting element configured to split the input light into a first portion and a second portion, wherein the first portion contains a first substantially non-green primary color from the input light and wherein the second portion contains a second substantially non-green primary color from the input light and a substantially green primary color from the input light;
 - a first polarizing beam splitter configured to receive the first portion light containing the first substantially non-green primary color from the input dichroic beam splitting element;
 - a first reflective panel adjacent to the first polarizing beam splitter and configured to modulate and reflect the first portion light;
 - a second polarizing beam splitter configured to receive the second portion light and to split the second portion light into a third portion light containing the second substantially non-green primary color and a fourth portion light containing the substantially green primary color;
 - a second reflective panel adjacent to the second polarizing beam splitter and configured to modulate and reflect the third portion light;
 - a third reflective panel adjacent to the second polarizing beam splitter and configured to modulate and reflect the fourth portion light; and

a third polarizing beam splitter adjacent to the first and second polarizing beam splitters and configured to combine the modulated and reflected lights of the first, third, and fourth portions to form an output light.

2. A color management architecture according to claim 1, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the first polarizing beam splitter.

3. A color management architecture according to claim 1, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the second polarizing beam splitter.

4. A color management architecture according to claim 1, further comprising:
a first polarizing element optically between the input dichroic beam splitting element and the first polarizing beam splitter; and
a second polarizing element optically between the input dichroic beam splitting element and the second polarizing beam splitter.

5. A color management architecture according to claim 1, further comprising:
a dichroic filter optically between the input dichroic beam splitting element and the first polarizing beam splitter and configured to substantially transmit the first portion light and substantially block the second substantially non-green primary color and the substantially green primary color.

6. A color management architecture according to claim 1, further comprising:

a dichroic filter optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to substantially transmit the second portion light and substantially block the first substantially non-green primary color.

7. A color management architecture according to claim 1, further comprising:
a first dichroic filter optically between the input dichroic beam splitting element and the first polarizing beam splitter and configured to substantially transmit the first portion light and substantially block the second substantially non-green primary color and the substantially green primary color; and

a second dichroic filter optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to substantially transmit the second portion light and substantially block the first substantially non-green primary color.

8. A color management architecture according to claim 1, further comprising:
a polarization rotation element optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to rotate at least one of the second substantially non-green primary color and the substantially green primary color.

9. A color management architecture according to claim 8, wherein the polarization rotation element is selected from the group consisting of a magenta/green filter and a red/cyan filter.

10. A color management architecture according to claim 1, further comprising:
a polarization rotation element optically between the second polarizing beam splitter and
the third polarizing beam splitter and configured to rotate the modulated and
reflected lights of at least one of the third and fourth portions.

11. A color management architecture according to claim 10, wherein the polarization
rotation element is further configured to compensate the modulated and reflected lights of at least
one of the third and fourth portions for skew rays.

12. A color management architecture according to claim 1, further comprising:
a first polarization rotation element optically between the input dichroic beam splitting
element and the second polarizing beam splitter and configured to rotate at least
one of the second substantially non-green primary color and the substantially
green primary color; and
a second polarization rotation element optically between the second polarizing beam
splitter and the third polarizing beam splitter and configured to rotate the
modulated and reflected lights of at least one of the third and fourth portions.

13. A color management architecture according to claim 12, wherein
the first polarization rotation element is selected from the group consisting of a
magenta/green filter and a red/cyan filter; and
the second polarization rotation element is further configured to compensate the
modulated and reflected lights of at least one of the third and fourth portions for
skew rays

14. A color management architecture according to claim 1, further comprising:
a oblique-plate compensator optically between the input dichroic beam splitting element
and the first polarizing beam splitter.
15. A color management architecture according to claim 1, further comprising:
a oblique-plate compensator optically between the input dichroic beam splitting element
and the second polarizing beam splitter.
16. A color management architecture according to claim 1, further comprising:
a first oblique-plate compensator optically between the input dichroic beam splitting
element and the first polarizing beam splitter; and
a second oblique-plate compensator optically between the input dichroic beam splitting
element and the second polarizing beam splitter.
- 17 A method of projecting light comprising:
splitting a substantially white input light into a first portion and a second portion with a
dichroic beam splitter, wherein the first portion contains a first substantially non-
green primary color from the input light and wherein the second portion contains
a second substantially non-green primary color from the input light and a
substantially green primary color from the input light;
directing the first portion of light to a first panel with a first polarizing beam splitter, the
first panel modulating and reflecting the first portion of light;

splitting the second portion of light into a third portion light containing the second substantially non-green primary color and a fourth portion light containing the substantially green primary color with a second polarizing beam splitter; directing the third portion of light to a second panel with the second polarizing beam splitter, the second panel modulating and reflecting the third portion of light; directing the fourth portion of light to a third panel with the second polarizing beam splitter, the third panel modulating and reflecting the fourth portion of light; combining the modulated and reflected third and fourth portions of light with the second polarizing beam splitter to form a fifth portion of light; and combining the modulated and reflected first portion of light with the fifth portion of light using a third polarizing beam splitter to form an output light.

18. A method according to claim 17, further comprising:

compensating light of the first portion with a first oblique-plate compensator; and compensating light of the second portion with a second oblique-plate compensator.

19. A method according to claim 17, further comprising:

compensating light of the fifth portion before combining the modulated and reflected first portion of light with the fifth portion of light.

20. A method according to claim 17, wherein the light of the fifth portion is compensated using a polarization rotation element.

21. A color management architecture for managing red, blue, and green primary colors from a substantially white input light, the architecture comprising:

- an input dichroic beam splitting element configured to split the input light into a first portion and a second portion, wherein the first portion contains a first substantially non-green primary color from the input light and wherein the second portion contains a second substantially non-green primary color from the input light and a substantially green primary color from the input light;
- a first polarizing beam splitter configured to receive the first portion light containing the first substantially non-green primary color from the input dichroic beam splitting element;
- a first reflective panel adjacent to the first polarizing beam splitter and configured to modulate and reflect the first portion light;
- a second polarizing beam splitter configured to receive the second portion light and to split the second portion light into a third portion light containing the second substantially non-green primary color and a fourth portion light containing the substantially green primary color;
- a second reflective panel adjacent to the second polarizing beam splitter and configured to modulate and reflect the third portion light;
- a third reflective panel adjacent to the second polarizing beam splitter and configured to modulate and reflect the fourth portion light;
- a third polarizing beam splitter adjacent to the first and second polarizing beam splitters and configured to combine the modulated and reflected lights of the first, third, and fourth portions to form an output light; and

at least one skew ray compensator optically positioned and configured to compensate the lights of at least one of the first, second, third, and fourth portions.

22. A color management architecture according to claim 21, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the first polarizing beam splitter.

23. A color management architecture according to claim 21, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the second polarizing beam splitter.

24. A color management architecture according to claim 21, further comprising:
a first polarizing element optically between the input dichroic beam splitting element and the first polarizing beam splitter; and
a polarizing element optically between the input dichroic beam splitting element and the second polarizing beam splitter.

25. A color management architecture according to claim 21, further comprising:
a dichroic filter optically between the input dichroic beam splitting element and the first polarizing beam splitter and configured to substantially transmit the first portion light and substantially block the second substantially non-green primary color and the substantially green primary color.

26. A color management architecture according to claim 21, further comprising:

a dichroic filter optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to substantially transmit the second portion light and substantially block the first substantially non-green primary color.

27. A color management architecture according to claim 21, further comprising:
a first dichroic filter optically between the input dichroic beam splitting element and the first polarizing beam splitter and configured to substantially transmit the first portion light and substantially block the second substantially non-green primary color and the substantially green primary color; and
a second dichroic filter optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to substantially transmit the second portion light and substantially block the first substantially non-green primary color.

28. A color management architecture according to claim 21, further comprising:
a polarization rotation element optically between the input dichroic beam splitting element and the second polarizing beam splitter and configured to rotate at least one of the second substantially non-green primary color and the substantially green primary color.

29. A color management architecture according to claim 28, wherein the polarization rotation element is selected from the group consisting of a magenta/green filter and a red/cyan filter.

30. A color management architecture according to claim 21, further comprising:
a polarization rotation element optically between the second polarizing beam splitter and
the third polarizing beam splitter and configured to rotate the modulated and
reflected lights of at least one of the third and fourth portions.

31. A color management architecture according to claim 30, wherein the polarization
rotation element is further configured to compensate modulated and reflected lights of at least
one of the third and fourth portions for skew rays.

32. A color management architecture according to claim 21, further comprising:
a first polarization rotation element optically between the input dichroic beam splitting
element and the second polarizing beam splitter and configured to rotate at least
one of the second substantially non-green primary color and the substantially
green primary color; and

a second polarization rotation element optically between the second polarizing beam
splitter and the third polarizing beam splitter and configured to rotate the
modulated and reflected lights of at least one of the third and fourth portions.

33. A color management architecture according to claim 32, wherein
the first polarization rotation element is selected from the group consisting of a
magenta/green filter and a red/cyan filter; and
the second polarization rotation element is further configured to compensate modulated
and reflected lights of at least one of the third and fourth portions for skew rays.

34. A color management architecture according to claim 21, wherein the at least one skew ray compensator is an oblique-plate skew ray compensator.

35. A color management architecture according to claim 34, further comprising:
a oblique-plate skew ray compensator optically between the input dichroic beam splitting element and the first polarizing beam splitter.

36. A color management architecture according to claim 34, further comprising:
a oblique-plate skew ray compensator optically between the input dichroic beam splitting element and the second polarizing beam splitter.

37. A color management architecture according to claim 34, further comprising:
a first oblique-plate skew ray compensator optically between the input dichroic beam splitting element and the first polarizing beam splitter; and
a second oblique-plate skew ray compensator optically between the input dichroic beam splitting element and the second polarizing beam splitter.

38. A color management architecture comprising:
an input dichroic beam splitting element configured to split an input light into a first portion and a second portion;
a first light directing element configured to receive light of the first portion from the input dichroic beam splitting element;
a first reflective panel adjacent to the first light directing element and configured to modulate and reflect light of the first portion;

a second light directing element configured to split light of the second portion into a third portion and a fourth portion;

a second reflective panel adjacent to the second light directing element and configured to modulate and reflect light of the third portion;

a third reflective panel adjacent to the second light directing element and configured to modulate and reflect light of the fourth portion;

a third light directing element adjacent to the first and second light directing elements and configured to combine modulated and reflected light of the first, third, and fourth portions to form an output light; and

at least one skew ray compensator optically positioned and configured to compensate the lights of at least one of the first, second, third, and fourth portions.

39. A color management architecture according to claim 38, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the first light directing element.

40. A color management architecture according to claim 38, further comprising:
a polarizing element optically between the input dichroic beam splitting element and the second light directing element.

41. A color management architecture according to claim 38, further comprising:
a first polarizing element optically between the input dichroic beam splitting element and the first light directing element; and

a second polarizing element optically between the input dichroic beam splitting element and the second light directing element.

42. A color management architecture according to claim 38, further comprising:
a dichroic filter optically between the input dichroic beam splitting element and the first light directing element and configured to transmit light of the first portion.

43. A color management architecture according to claim 38, further comprising:
a dichroic filter optically between the input dichroic beam splitting element and the second light directing element and configured to transmit light of the second portion.

44. A color management architecture according to claim 38, further comprising:
a first dichroic filter optically between the input dichroic beam splitting element and the first light directing element and configured to transmit light of the first portion;
and
a second dichroic filter optically between the input dichroic beam splitting element and the second light directing element and configured to transmit light of the second portion.

45. A color management architecture according to claim 38, further comprising:
a polarization rotation element optically between the input dichroic beam splitting element and the second light directing element and configured to rotate a portion of the wavelength spectrum of the second portion.

46. A color management architecture according to claim 45, wherein the polarization rotation element is selected from the group consisting of a magenta/green filter and a red/cyan filter.

47. A color management architecture according to claim 37, further comprising:
a polarization rotation element optically between the second light directing element and the third light directing element and configured to rotate the lights of at least one of the third and fourth portions.

48. A color management architecture according to claim 37, further comprising:
a first polarization rotation element optically between the input dichroic beam splitting element and the second light directing element and configured to rotate a portion of the wavelength spectrum of the second portion;
a second polarization rotation element optically between the second light directing element and the third light directing element and configured to rotate the lights of at least one of the third and fourth portions.

49. A color management architecture according to claim 48, wherein the first polarization rotation element is selected from the group consisting of a magenta/green filter and a red/cyan filter.

50. A color management architecture according to claim 38, further comprising:

a oblique-plate compensator optically between the input dichroic beam splitting element and the first light directing element and configured to compensate the light of the first portion for skew rays.

51. A color management architecture according to claim 38, further comprising:

a oblique-plate compensator optically between the input dichroic beam splitting element and the second light directing element and configured to compensate the light of the second portion for skew rays.

52. A color management architecture according to claim 38, further comprising:

a first oblique-plate compensator optically between the input dichroic beam splitting element and the first light directing element and configured to compensate the light of the first portion for skew rays; and

a second oblique-plate compensator optically between the input dichroic beam splitting element and the second light directing element and configured to compensate the light of the second portion for skew rays.